

Rejections under 35 U.S.C. § 103(a)

A. The Examiner has rejected claims 6, 8 and 15 as being unpatentable over U.S. Patent 5,690,974 to Miyairi ("Miyairi") in view of U.S. Patent No. 5,545,365 to Asai ("Asai").

1. Claim 6

Applicant submits that claim 6 is patentable over the cited references. For example, claim 6 recites that a gate resides at a point where a runner contacts a resin reservoir. Further, the gate does not protrude into the resin reservoir.

Similar to the previous Office Action of October 2, 2002, and May 7, 2003, the Examiner maintains that nozzle tip 5a (Fig. 1) of Miyairi anticipates the claimed gate. However, even assuming *arguendo* that tip 5a is the claimed gate, tip 5a extends or protrudes into reservoir 4, as shown in Figs. 1-4. Therefore, tip 5a fails to teach or suggest the claimed gate.

Further, as stated in col. 4, lines 30-32 of Miyairi, the reservoir 4 is formed on the movable mold half 2 and compression core 6 is arranged on the fixed die half 1. Claim 6 recites the exact opposite, by having the cut punch provided on the movable die and the reservoir formed as a recess in the fixed die.

Claim 6 also recites an undercut portion provided at a periphery of the distal end of the cut punch to hold the resin solidified portion formed in the resin reservoir at the time of mold opening.

The Examiner acknowledges that Miyairi fails to teach or suggest such a feature, but contends that Asai does. In particular, the Examiner maintains that gate cutter 25 of Asai has an undercut portion at its distal end. However, there is no disclosure of the cited distal end portion, and as shown in Figs. 1, 2 and 3, the portion referred to by the Examiner appears to be “indented”. Further, the indented portions formed at the end of gate cutter 25 appear to conform in shape with the protruding portions of sprue bushing 12 (i.e. Fig. 1). Therefore, as gate cutter 25 moves through gate G, it appears that the indented portions will “mate” or “contact” with the protruding portions of sprue bushing 12.

In such a contacted state, there would not be any resin in the indented portion. If there is no resin in the indented portion, then the indented portions would fail to serve as the claimed undercut portion for holding a resin solidified portion at the time of mold opening. For example, during operation, it appears that the only resin left in hole 11A of female cutter 11 would be in the passage of sprue bushing 12 and the recess provided by ejector pin 26. As demonstration of this, the reference states that after mold opening, the sprue gate of disc P is ejected by protrusion of center ejector pin 26 (col. 4, lines 13-15). Although the sprue gate is not labeled in the figures of Asai, Applicant assumes that the disclosed sprue gate refers to the passage of sprue bushing 12 (i.e. Fig. 1).

In summary, there is no disclosure of the indented portions of gate cutter 25, and the figures and disclosure of Asai appear to teach away from the Examiner’s assertion, i.e. that the indented portions serve to hold a resin solidified portion of disc P at the time of mold opening. Accordingly, Applicant submits that Asai fails to teach or suggest the claimed undercut portion.

In light of the above, Applicant submits that the combination of Miyairi and Asai fails to teach or suggest the injection mold of claim 1.

On February 17, 2004, the undersigned contacted the Examiner via telephone to discuss the differences between the claimed undercut portion and the Asai reference. The Examiner indicated that he understands Applicant's position, and would further consider Applicant's arguments upon receipt of a formal Response. Accordingly, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claim 8

Since claim 8 is dependent upon claim 6, Applicant submits that such claim is patentable at least by virtue of its dependency.

3. Claim 15

Applicant assumes the Examiner inadvertently omitted to recite the Asai reference in the rejection heading of claim 15 on page 4 of the Office Action, since such reference is referred to in the body of the rejection. However, Applicant respectfully requests that the Examiner confirm Applicant's understanding.

Further, since claim 15 contains features which are analogous to the features recited in claim 6, Applicant submits that such claim is patentable over the cited references for at least analogous reasons as presented above.

**B.** The Examiner has rejected claims 6 and 8 as being unpatentable over JP Publication No. 02-198816 to Suekichi ("Suekichi") in view of Asai.

Applicant assumes the Examiner inadvertently omitted to recite the Asai reference in the rejection heading of claims 6 and 8, since such reference is referred to in the body of the rejection. Applicant respectfully requests the Examiner to confirm Applicant's understanding.

1. Claim 6

Applicant submits that claim 6 is patentable over the cited references. For example, claim 6 recites that a resin reservoir is formed by recessing a fixed die toward a gate, where the cut punch can be inserted into the resin reservoir.

Similar to the previous Office Action of October 2, 2002, and May 7, 2003, the Examiner appears to maintain that disc gate 2 (Figs. 1-3) of Suekichi anticipates the claimed resin reservoir. However, even assuming *arguendo* that disc gate 2 of Suekichi corresponds to the claimed resin reservoir, gate 2 still does not meet the recitations of claim 6. As shown in Figures 1-3 of Suekichi, the disc gate 2 appears to be part of or in line with cavity 3, rather than a separate cavity. Disc gate 2 appears to remain part of cavity 3 until punch 4 is advanced to separate the two areas. Also, gate 2 does not appear to be recessed into the fixed die.

In addition, claim 6 recites an undercut portion provided at a periphery of the distal end of the cut punch to hold the resin solidified portion formed in the resin reservoir at the time of mold opening.

The Examiner acknowledges that Suekichi fails to teach the claimed undercut portion, but contends that Asai does. However, for the reasons previously set forth, Applicant submits that Asai fails to teach or suggest the claimed undercut portion.

Accordingly, Applicant submits that claim 6 is patentable over the combination of the cited references, and respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claim 8

Since claim 8 is dependent upon claim 6, Applicant submits that such claim is patentable at least by virtue of its dependency.

C. The Examiner has rejected claims 15, 17 and 18 as being unpatentable over U.S. Patent 5,472,334 to Takahashi ("Takahashi") in view of Asai.

Applicant assumes the Examiner inadvertently omitted to recite the Asai reference in the rejection heading of claims 15, 17 and 18, since such reference is referred to in the body of the rejections. Applicant respectfully requests the Examiner to confirm our understanding.

1. Claim 15

Applicant submits that claim 15 is patentable over the cited references. For example, claim 15 recites that an undercut portion is provided at a periphery of a distal end of the cut punch. The undercut portion serves to hold a resin solidified portion formed in the resin reservoir at the time of mold opening.

The Examiner acknowledges that Takahashi fails to teach or disclose such a feature, but contends that Asai does. However, for the reasons previously set forth, Applicant submits that Asai fails to teach or suggest the claimed undercut portion.

Accordingly, Applicant submits that claim 15 is patentable over the cited references, and respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claim 17

Since claim 17 is dependent upon claim 15, Applicant submits that such claim is patentable at least by virtue of its dependency.

3. Claim 18

Since claim 18 contains features which are analogous to the features recited in claim 15, Applicant submits that claim 18 is patentable for at least analogous reasons as presented above.

Rejections under 35 U.S.C. § 103(a)

A. The Examiner has rejected claims 1-3, 5, 13 and 14 as being unpatentable over Miyairi in view of Asai, U.S. Patent No. 5,868,978 to Kadoriku et al. (“Kadoriku”), JP Publication No. 02-067115A to Ikuo ( “Ikuo”) and JP Publication No. 09-262880 to Kunio (“Kunio”).

1. Claim 1

Applicant submits that claim 1 is patentable over the cited reference. For example, claim 1 recites that molten resin still present in the resin reservoir is pushed back into the gate by the cut punch, at a time when the resin material in direct contact with the dies is gradually solidified.

The Examiner acknowledges that Miyairi, Ikuo and Kunio fail to suggest such a feature, but contends that Kadoriku does. However, as stated in the August 7, 2003 Amendment, Applicant believes that the Office Action is misinterpreting and/or misapplying the cited reference. For example, in Kadoriku, when the resin material filled in cavity 5 is gradually cooled down by dies 2 and 4, cut punch 8 is lifted to separate sprue portion B1 from the disks B formed in cavity 5 (Fig. 2A). When dies 2 and 4 are open, molded products of sprue B1 and disks B are removed (Figs. 2B and 2C).

Applicant submits that Kadoriku fails to teach or disclose that the movement of cut punch 8 pushes still molten resin back into a gate portion (between interior space 25a and sprue region 5a of Fig. 1) since sprue B1 appears to retain its shape and size during movement of cut punch 8.

Further, since cut punch 8 is shown as contacting sprue B1 at an outer periphery, Applicant submits that cut punch 8 fails to push still molten resin back into a gate portion.

Claim 1 further recites that an undercut portion provided at a periphery of a distal end of the cut punch retains a resin solidified portion in the resin reservoir. The Examiner maintains that Asai discloses such a feature. However, for the reasons previously set forth, Applicant submits that Asai fails to teach or suggest the claimed undercut portion.

Accordingly, Applicant submits that claim 1 is patentable over the cited references and respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claims 2, 3 and 5

Since claims 2, 3 and 5 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

3. Claim 13

Since claim 13 contains features which are analogous to the features recited in claim 1, Applicant submits that claim 13 is patentable over the combination of the cited references for at least analogous reasons as presented above.



4. Claim 14

Since claim 14 is dependent upon claim 13, Applicant submits that such claim is patentable at least by virtue of its dependency.

**B.** The Examiner has rejected claim 4 as being unpatentable over Miyairi in view of Asai, Kadoriku, Ikuo, Kunio and EP 0620097 to Ohno et al. ("Ohno").

However, since claim 4 is indirectly dependent upon claim 1, and Asai fails to cure the deficient teachings of Miyairi, Kadoriku, Ikuo, Kunio and Ohno, Applicant submits that such claim is patentable at least by virtue of its dependency.

**C.** The Examiner has rejected claims 7 and 9-11 as being unpatentable over Miyairi, Asai, Ikuo and Kunio.

1. Claims 7, 9 and 10

Since claims 7, 9 and 10 are dependent, either directly or indirectly, upon claim 6, Applicant submits that such claims are patentable at least by virtue of their dependency.

2. Claim 11

Applicant submits that claim 11 is patentable over the cited references. For example, claim 11 recites that a depth of the resin reservoir is 1.5 to 10 times an opening distance of the communication portion.

The Examiner maintains that the change in depth is merely a change in shape and size, and is therefore obvious. However, on pages 37 and 38 of the present Application, varying ratios of the depth of the resin reservoir to the opening distance of the communication portion, are shown from 1.2 to 10. As shown in table 5, and disclosed on page 38, the claimed ratio range provides a wider range of driving times and a more stable production. Accordingly, the features disclosed in claim 11 are not merely a change in shape or size, as contended by the Examiner.

Since neither Miyairi, Ikuo, Kunio or Asai disclose such a feature, Applicant submits that claim 11 is patentable over the cited references.

Applicant notes that the above argument was previously submitted in the August 7, 2003 Amendment. Therefore, Applicant respectfully requests that the Examiner provide a response to the arguments presented.

D. The Examiner has rejected claims 1-3, 5, 13 and 14 as being unpatentable over Suekichi in view of Asai, Kadoriku, Ikuo and Kunio.

1. Claim 1

Applicant submits that claim 1 is patentable over the cited references. For example, claim 1 recites that molten resin still present in the resin reservoir is pushed back into the gate by the cut punch, at a time when the resin material in direct contact with the dies is gradually solidified.

The Examiner acknowledges that Suekichi, Ikuo and Kunio fail to suggest such a feature, but contends that Kadoriku does. However, similar to Applicant's statements above concerning the rejection of claim 1 in view of Miyairi and Kadoriku, Applicant submits that the Office Action is misinterpreting and/or misapplying the Kadoriku reference.

Claim 1 further recites that an undercut portion provided at a periphery of a distal end of the cut punch retains a resin solidified portion in the resin reservoir. The Examiner maintains that Asai discloses such a feature. However, for the reasons previously set forth, Applicant submits that Asai fails to teach or suggest the claimed undercut portion.

Accordingly, Applicant submits that claim 1 is patentable over the cited references, and respectfully requests the Examiner to reconsider and withdraw the rejection.

2. Claims 2, 3 and 5

Since claims 2, 3 and 5 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

3. Claim 13

Since claim 13 contains features which are analogous to the features recited in claim 1, Applicant submits that claim 13 is patentable over the combination of the cited references for at least analogous reasons as presented above.

4. Claim 14

Since claim 14 is dependent upon claim 13, Applicant submits that such claim is patentable at least by virtue of its dependency.

E. The Examiner has rejected claim 4 as being unpatentable over Suekichi in view of Asai, Kadoriku, Ikuo, Kunio and Ohno.

However, since claim 4 is indirectly dependent upon claim 1, and Asai fails to cure the deficient teachings of Miyairi, Kadoriku, Ikuo, Kunio and Ohno, Applicant submits that such claim is patentable at least by virtue of its dependency.

F. The Examiner has rejected claims 7 and 9-11 as being unpatentable over Suekichi in view of Asai, Ikuo and Kunio.

1. Claims 7, 9 and 10

Since claims 7, 9 and 10 are dependent, either directly or indirectly, upon claim 6, Applicant submits that such claims are patentable at least by virtue of their dependency.

2. Claim 11

For similar reasons as presented above under the rejection of claim 11 in view of the Miyairi reference, Applicant submits that claim 11 is patentable over the combination of Suekichi, Asai, Ikuo and Kunio.

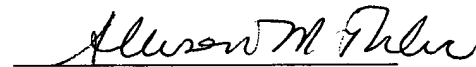
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Response under 37 C.F.R. § 1.116  
U.S. Application No. 09/622,360

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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**23373**

CUSTOMER NUMBER

Date: February 23, 2004  
(February 21, 2004 being a Saturday)